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ELECTRIC POWER AND POWER EQUIPMENT

FIRST POWER UNIT AT ARMYANSKAYA AES OPERATING SUCCESSFULLY

Yerevan KOMMUNIST in Russian 30 Dec 79 p 1

[Article by A. Shkulev]

[Excerpts] On 28 December 1976, the first power unit of 405,000 kilowatts started operating at Armyanskaya AES. The electric current of Armyanskaya AES started flowing to the unified power system of Transcaucasia.

During the three years since the start-up of the first unit, Armyanskaya AES produced five billion kilowatt-hours of electric energy.

The year of 1979 was particularly productive. The AES personnel fulfilled the year's plan for the delivery of electric power ahead of schedule, succeeded in lowering the cost of one kilowat-hour, and ensured the growth of labor productivity. But what was most important, they brought the reactor of Block No 1 to its full installed capacity.

During the third quarter of this year, power engineers replaced the main circulation pumps with more advanced inertial pumps and reloaded the nuclear fuel apparatus of Block No 1, having laid a solid foundation for highly productive smooth operation of the atomic electric power station and further improvement of its effectiveness.

The three-year experience in the operation of Armyanskaya AES demonstrated a high effectiveness of the domestic equipment and the reliability of the systems of control and radiation protection. The AES is under vigilant surveillance of biologists and medical personnel, who determine the effects of the station on the environment with the aid of sensitive instruments and sensors. It is interesting to note that an ordinary boiler room in Yerevan pollutes the atmosphere and the area around it much more than the atomic electric power station.

With the introduction of the second block, the capacity of Armyanskaya AES will increase to 815,000 kilowatts and will exceed the output of all operating hydroelectric power stations of the republic.

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ELECTRIC POWER AND POWER EQUIPMENT

BELOYARSKAYA AES DEVELOPMENT REVIEWED

Moscow IZVESTIYA in Russian 14 Dec 79 p 2

[Article by L. Bobykin, secretary of Sverdlovsk Obkom of the CPSU]

[Text] Speaking at the November (1979) Plenum of the CPSU Central Committee Secretary-General of the CPSU Central Committee, Chairman of the Presidium of the USSR Supreme Soviet Comrade L. I. Brezhnev said: "... our duty is to think in advance about the power engineering of the future on which the economic growth of the country depends greatly.

Consequently, long-range plans must envisage extensive construction of atomic electric power stations with fast neutron reactors and development of work on controlled thermonuclear fusion, production of synthetic liquid fuel, and the use of solar and geothermal energy."

Only a quarter of a century separates us from the day when the world's first electric power station working on the energy of splitting atoms was put into operation in Obninsk. Its capacity was small in terms of the modern scale, only 5,000 kilowatts, but this event opened up a new era in power engineering.

On the basis of the experience in the designing and operation of the first atomic electric power station, it was decided to build more powerful atomic stations for industrial purposes. One of them was Beloyarskaya AES. In 1964, a reactor with an electric generator for 100,000 kilowatts was put into operation. In its scale, it was commensurable with the power units which were being built at that time at thermal electric power stations.

This was not a mere expansion of the capacity of the enterprise, but, in many respects, it was the latest in the domestic and world power engineering. The method of nuclear superheating of steam directly in the reactor which was used for the first time was of fundamental significance. This makes it possible to obtain it with parameters sufficient for the use of series turbines and generators. In the next block of the station, thermal loads of the reactor were increased, one heat exchange circuit was eliminated, and electric power was doubled. Subsequent operation of Beloyarskaya AES confirmed the effectiveness of the technical solutions, reliability of domestically produced equipment, a high degree of radiation safety, and became a basis for the creation of large channel-type reactors.

The construction and development of the new atomic enterprise was the subject of special attention and pride of the Sverdlovskaya Oblast party organization. Talented organizers and propagandists were sent there by oblast and city committees of the CPSU, and party committees of many enterprises. When the construction of the power unit was started, by decision of the party obkom office, an oblast headquarters was created which took this construction project under its strict control. It included party, soviet, professional, and Komsomol workers. The party organization strengthened and united the communists of the construction administration, and workers of the installation, start-up, and adjustment sections. It includes 15 party groups and 12 shop party organizations. It is a great political force which influences daily a body of 3,000 people.

Thanks to the well-thought-through and versatile political and organizational work of the communists, this became the first domestic school for the builders and operating personnel of atomic electric power stations which was conducting extensive scientific and technical research. Hundreds of specialists, designers and technologists, have been acquiring their practical experience at the Beloyarskaya AES with constant help of the party organizations, learning the secrets of professional skill, learning team work and joint solution of complex scientific and technical problems.

In 15 years after the start-up of the Beloyarskaya AES, our domestic nuclear science and technology have progressed greatly. Series-produced power units of one million kilowatts have been put into operation. Nuclear energy is used widely in remote regions of the Kola Peninsula and Chukotsk. The percentage of electric energy produced in our country by atomic electric power stations is increasing rapidly every year.

It is self-evident that without a wide use of atomic energy for peaceful purposes it is impossible to provide reliably our national economy with electric power which is the basis of economic and, in conjunction with the socialistic structure of our society, social progress. However, scientists are debating on how long the reserves of the traditional atomic fuel will last if the existing structures and growth rate of its world consumption are maintained.

Soviet scientists and engineers are conducting large-scale work connected with the creation of industrial fast-neutron reactors. Beloyarskaya AES became the site of their experiments. In accordance with the resolutions of the 25th CPSU Congress, the construction of a powerful BN-600 reactor of this type is nearing completion here. It has many improved features in comparison to its predecessors: a higher efficiency, higher degree of reliability and safety, the working period between fuel reloading was increased.

The builders and installers of the unique unit entered the start-up year of 1979 with a feeling of great anxiety due to serious delays in the deliveries of technological equipment and extremely short periods allotted for installation, start-up and adjustment jobs. The oblast party committee decided to use the remarkable experience of the organization of socialist competitions on the "relay-race" principle.

Frequent meetings were held at the work sites in the settlement of Zarechnoye by leading workers of ministeries and central departments, directors, secretaries of party organizations of enterprises and institutes participating in the designing and manufacturing of the equipment, construction, installation, and adjustment of the power unit. Personal contacts helped in revealing mutual complaints and determining optimal sequence of delivries of the lacking equipment and materials. As a result of these business contacts, 15 scientific,research, design, construction, installation, start-up and adjustment organizations and enterprises supplying the equipment, as well as the Beloyarskaya AES signed an agreement on cooperation.

The newspaper "Izvestiya" took the construction project under its patronage. Criticisms published in the newpaper were discussed by the board of the ministries, decisions were made, and the situation at the construction site changed.

However, the most important thing is that hundreds and thousands of people became involved in the "work relay race". The names of the initiators who coordinated the construction and installation schedules are now known not only at the projects under construction, but far beyond their limits. They include brigade leader of carpenters and concrete workers I. Rumyantsev and brigade leader of masons I. Mal'tsev, installation teams of V. Vakulenko, G. Aleshin, and A. Zhilkin, initiators of a movement under the slogan "Five-Year Plan with Fewer Workers."

Party organizations and groups give their vigorous support to any initiative which makes it possible to reveal new reserves. Concrete results of the "work relay race" are regularly discussed in brigades, shifts and work sections. Public headquarters publish daily special bulletins. Job schedules are posted on bulletin boards, and each participant of the competition knows how many days are left to the completion of the job.

Of course, it would be wrong to think that all problems have been solved and that difficulties do not occur during the most responsible start-up period. It was mentioned at a recent meeting of the board of the Ministry of Power and Electrification held at the construction site with the participation of the secretaries of the Sverdlovsk party obkom, ministers, representatives of Gosplan and Gosstroy of the USSR that many construction projects are behind schedule. At the present, the oblast and city committees of the CPSU are implementing additional measures to help the situation. New reinforcements have been sent to Beloyarsk. Shock Komsomol teams are using widely progressive forms of scientific organization of labor.

But there are jobs which require to increase the number of specialists which cannot be found within the limits of the oblast. Therefore, it is necessary that the USSR Ministry of Power and Electrification should fulfill the decisions of the board meeting held at the site of the third power unit as soon as possible and complete the lagging teams with skilled workers, in other words, implement the planned measures.

The introduction of the BN-600 reactor brought Beloyarskaya AES again to the front line of technical progress and rejuvenated it. It seems out of place to talk about the "aging" of an enterprise which has been operating for only 15 years. But such is the pace of technological progress in the nuclear power engineering of the country. The personnel of the Beloyarskaya AES imeni I. V. Kurchatov has to resolve many complicated problems in order to make the new power unit fully operational as soon as possible, to become again an "experimental field" for training skilled personnel, and to persistently accumulate and spread experience which is so needed for the rapidly developing young sector of the national economy.

Therefore, it is proper to talk today about the future prospects of the station and about expansion of its capacities. The middle Ural area is not rich in fuel. It will suffice to say that only 11% of the needs of Sverdlovskaya Oblast is satisfied from local sources. At the same time, the needs in fuel continue to grow, particularly for electric power stations. The difficulties with fuel transportation, particularly of coal, are growing simultaneously. Therefore, it is hardly practical to build here new large thermal stations (with the exception of TETs) for heat supply to enterprises and cities. Evidently, it is necessary to reexamine the existing opinion that large atomic electric power stations are advantageous only in the central and western regions of the country, but not at the Urals, where, supposedly, it is possible to get by with the existing facilities based on Ekibastuz and Kuznetsk coals.

Beloyarskaya AES has a vacant area, water reserves in the existing reservoir, skilled personnel, and a remarkable well planned city for power industry workers, in other words, everything that determines economic effectiveness of the expansion of an existing enterprise. Another quite important circumstance should be added to this. After the completion of the construction of the BN-600 unit, a large number of builders and installation personnel will be released. Moreover, Reftinskaya GRES will start operating to its full capacity in the same area in 1980. It is being built by just as big a group of workers of another construction administration of the trust "Uralenergostroy" and subcontracting organizations. Further expansion of Beloyarskaya AES can be achieved through joint efforts of these groups.

Sverdlovsk Obkom of the CPSU supports the proposals of the personnel of Beloyarskaya AES and the USSR Ministry of Power and Electrification for the construction of new power units with fast neutron reactors. Realization of this proposal conforms with the economical expediency of increasing the capacities of atomic power engineering through a fuller utilization of the resources of natural uranium.

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ELECTRIC POWER AND POWER EQUIPMENT

DEVELOPMENT OF POWER ENGINEERING IN THE UKRAINE DISCUSSED

Kiev PRAVDA UKRAINY in Russian 22 Dec 79 p 2

[Article by A. Ma[illegible]n, Minister of Power and Electrification of the Ukrainian SSR on the development of power engineering in 1979 and plans for 1980]

[Text] The year of 1979, a year of intense work, labor successes and achievements of the Soviet people, is coming to an end.

The resolutions of the November (1979) Plenum of the CPSU Central Committee and the December Plenum of the Central Committee of the Communist Party of the Ukraine were welcomed by Ukrainian power engineering workers. The key problems to be solved in the near future include the problems of the production and consumption of fuel and electric energy.

The power engineering facilities of the Soviet Ukraine have grown immensely in recent years. New generating capacities for 5.7 million kilowatts, including four highly economical power units of 800,000 kilowatts each were delivered during the years of the Tenth Five-Year Plan alone. Today, the republic has nine operating electric power stations with a unit capacity of over two million kilowatts each, and Zaporozhskaya and Uglegorskaya GRES have reached their rated capacity of 3.6 million kilowatts and became the largest stations in the USSR and Europe.

The construction of the first section of Chernobyl'skaya AES has been completed and it has reached its rated capacity ahead of schedule. It is stably operating with a maximum load of two million kilowatts, which made it possible to release more than nine million tons of coal since it was put into operation. The installation of the first unit at Rovenskaya AES is nearing completion. Four other atomic electric power stations are under construction: Yuzhno-Ukrainskaya, Krymskaya, Zaporozhskaya, and Khmel'nitskaya.

The Dnieper cascade of hydroelectric power stations and the Donbass -- Western Ukraine Electric Power Transmission Line are completed. LEP [electric power transmission line]-750 ensured parallel operation of the Unified Power System of the Soviet Union with the power system "Mir" of the CEMA member countries.

This year, the output of electric power in the Ukraine will reach 231 billion kilowatt-hours. The total length of electric power networks exceeds 800,000 kilometers.

Much has been done for the electrification of agriculture. Ninety percent of the needs of animal breeding complexes and poultry farms are satisfied by standby power sources, and will be fully satisfied in 1980. The power-worker ratio has increased 2.5-fold in comparison to 1970.

Equipment of thermal electric power stations with modern block-type equipment, its efficient operation, and implementation of a complex of organizational, engineering, and technical measures in four years lowered the specific fuel consumption by 7.1 grams and, as a result of this, saved 3.5 million tons of fuel. Labor productivity increased by 11.1 percent during this period, and more than half of its increment was due to the raising of the technical level of the industry.

All associations of the power industry are successfully fulfilling the annual goals for the production of electric and thermal energy, for the sales, and labor productivity.

The improvement of the effectiveness and quality of work is greatly aided by widespread socialist competitions and labor innovations of the personnels of enterprises, shops, shifts, and leading production workers. Zaporozhskaya GRES imeni 25th CPSU Congress is leading in the competition of the enterprises of the Ministry of Power and Electrification of the Ukrainian SSR. Blocks of 300,000 and 800,000 kilowatts were put into operation ahead of schedule, and by 11 December the station produced one hundred billion kilowatt-hours. Heading the movement for thrifty utilization of fuel and energy resources, the station saved 450,000 tons of fuel.

The Ukrainian power industry workers welcomed wholeheartedly the congratulations of the Central Committee of the Communist Party of the Ukraine and the Council of Ministers of the Ukrainian SSR to the personnel of Zaporozhskaya GRES, as well as to the builders, installers, and operation workers of Chernobyl'skaya AES for the labor victories won by them.

This high evaluation obligates us to work even harder and to spread socialist competitions.

The ranks of leading workers and innovators in production are multiplying. Their professional skill, organization, and discipline serve as an example for all participants of labor competitions. They include: the winner of the State Prize of the USSR Machine Operator of Uglegorskaya GRES G. A. Filonenko, winners of the State Prize of the Ukrainian SSR Senior Machine Operator of Ladyzhinskaya GRES P. I. Alekseyenko, Senior Machine Operator of Zaporozhskaya GRES G. F. Malyy, and many others. The title of the profession's best of the Ministry of Power and Electrification of the Ukrainian SSR was awarded to 70 workers.

The Communist Party and the Soviet Government value greatly the work of the power industry workers and the builders of the power facilities of the Ukraine. In four years of the five-year plan, 847 people were awarded orders and medals, 20 people were awarded the certificate of appreciation of the Supreme Soviet of the Ukrainian SSR, and eight workers were awarded the title of honored power industry worker of the Ukrainian SSR.

The next year will be intense. It will be necessary to put into operation generating capacities of 3.2 million kilowatts in the republic, more than 90% of them at atomic electric power stations. This includes power units at Chernobyl'skaya, Yuzhno-Ukrainskaya, and Rovenskaya AES, a district heating unit at Khar'kovskaya TETs-5, and two hydraulic units at Dneprovskaya GES imeni V. I. Lenin.

The production of electric power in the republic in 1980 will reach 238 billion kilowatt-hours. The share of AES in this flow of light and heat will exceed 20%. In order to improve the reliability of electric power supply to the national economy, more than 25,000 kilometers of electric power networks of all voltages will be built, and the construction of an electric power transmission line between Chernobyl'skaya AES and the West Ukrainian substation has been completed.

In his report at the December Plenum of the Central Committee of the Communist Party of the Ukraine, Comrade V. V. Shcherbitskiy, member of the Political Bureau of the CPSU Central Committee and First Secretary of the Central Committee of the Communist Party of the Ukraine pointed out some inadequacies in the work of a number of electric power stations and, at times, a low quality of repairs, which hindered electric power supply to the national economy. The workers of this industry took into consideration this just criticism and are taking measures for eliminating these defects.

Actively responding to the resolution of the CPSU Central Committee "on the 110th Anniversary of Vladimir Il'ich Lenin, Ukrainian Power Industry workers are promising to fulfill honorably the tasks given to them.

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ELECTRIC POWER AND POWER EQUIPMENT

KAMGESENERGOSTROY BLAMED FOR CONSTRUCTION DELAY

Moscow STROITEL'NAYA GAZETA in Russian 11 Jan 80 p 3

[Article by K. Seglin, staff correspondent, Naberezhnyye Chelny]

[Text] Replies of A. Semenov, Deputy Minister of Power and Electrification, and I. Krementsov, Chief Engineer of Glavzavodspetsstroy [Main Administration for Specialized Plant Construction], to the critical articles of this newspaper were published under the heading "Rapid Work Pace for KamAZ" (Stroitel'naya Gazeta, 14 October 1979). They reported that concrete measures had been taken for preventing interruptions in the material and technical supply for this very important construction project of the five-year plan.

The situation with the projects nearing completion in the second section of KamAZ remains just as grave as before. Kamgesenergostroy [Kama Trust for Hydroelectric Power Plant Construction] is still lagging behind. This was explained to me two months after the above replies by V. Pertsev, Deputy General Director of KamAZ.

A. Trofimenko, Deputy Chief Engineer of Avtozavodstroy [Trust for the Construction of Automobile Plants] said the following: "For example, how can we complete the floors and deliver the area for the installation of equipment when we do not have reinforced concrete trays or rings for intershop communication lines? The plants of Glavenergostroyprom [Main Administration of Enterprises for the Manufacture of Structural Parts and Building Materials] failed to deliver 27,000 cubic meters of structures to Kamgesenergostroy."

At the same time, it will not be an exaggeration to say that there are mountains of various reinforced concrete structures at the bases of the administrations of production and equipment outfitting (UPTK). The base of the UPTK of Avtozavodstroy alone stretched for more than two kilometers. There are 140,000 cubic meters of reinforced concrete today at the storage facilities and construction sites of Kamgesenergostroy. These are the known figures, but how much more materials are scattered over the steppe that are not taken into account!

There are mountains of reinforced concrete, but the brigades of workers are standing idle. What is the reason for this?

During the first stages of the KamAZ construction, it was simply impossible to get by without outside help. Buildings of the automobile plant complex, the city, and the construction industry base had to be build simultaneously. New trucks have been running on the roads of the country for a long time. The city has been built. But it is still unknown when the construction of its own plant with a capacity of 210,000 cubic meters of industrial reinforced concrete will be completed. The normal construction period of it is two years, but it is already the eighth year that it has been under construction. Only the first section of this enterprise with a capacity of 80,000 cubic meters has been put into operation, which amounts only to about one-half of the estimated cost of the plant.

Truck loads of materials are coming to KamAZ from all parts of the country.

Yu. Solov'yev, Head of the Outfitting Department of Kamgesenergostroy, told us the following: "The Board of Directors of KamAZ submitted to us variants of itemized internal construction lists for 1980 three times. For the customer, the reduction or increase in the figures recorded in them is simply a matter of arithmetic. But we, the supply workers, have to put in new orders for reinforced concrete every time."

The very mechanism of the provision of precast concrete sets for the construction projects of KamAZ is also disturbed. As early as 1973, a procedure was worked out which obligated the subdivisions of Kamgesenergostroy to determine sets of structures and order them through their UPTK at plants through the administration of Energostroykomplektatsiya [Technical Office for the Outfitting of Power Facilities Construction Projects] of the Glavenergostroyprom [Main Administration of Establishments for the Manufacture of Structural Parts and Building Materials of the Ministry of Electric Power Plant Construction]. If a set of structures was manufactured by several plants, then the main plant was responsible for the delivery of the set on time. It was even planned to do the outfitting with the aid of the information and computation center (IVTs). Some data are still issued by the IVTs once in a quarter. However, on the whole, much of what was introduced at that time is now forgotten.

G. Denisyuk, Head of the Legal Department of the Chelny Branch of Energostroykomplektatsiya, said the following: "We do not use economic sanctions. Once we petitioned to impose a penalty on the trust of industrial enterprises of Kamgesenergostroy for failing to observe the deadlines, but this was turned down. Another time, I put in a claim for 4,000 rubles against one of our plants, but the main administration reduced it to one twentieth of the amount."

UPTK make contracts for the delivery of complete sets with Energostroykomplektatsiya, but make payments for the structures directly to the plants "per cubic meter". This results in a total irresponsibility. You cannot fine a factory, because most frequently it is not responsible for the entire set. And people are simply afraid to fine Energostroykomplektatsiya because then you have to beg for placing additional orders.

The very system of the engineering preparation of production also needs improvement. Kamgesenergostroy, which was an initiator of many important innovations, unfortunately, does not have a facility for long-range planning. In 1978, the association submitted its proposals to the Ministry of Power and Electrification for creating an Orgtekhstroy [Organization of Technical Construction] Trust. Incidentally, provision for such a facility was made in the organizational structure of the association. Kamgesenergostroy tried again to prove its necessity and effectiveness and asked for additional limits for labor, but did not get the approval of the ministry.

Almost one half of the idle time within shifts in Kamgesenergostroy is due to delays in the delivery of construction materials and structures to the work sites. In terms of the KamAZ scale, this means that hundreds of people do not work daily. Can this be tolerated?

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ELECTRIC POWER AND POWER EQUIPMENT

BRIEFS

MARYYSKAYA GRES -- Mary, Ye. Kotova -- The fifth power unit of 200,000 kilowatts has been put into operation at the Maryyskaya GRES imeni 50th Anniversary of the USSR. Now, the capacity of the station has reached one million kilowatts. Since the beginning of its operation, this Mary station has produced 20 billion kilowatt-hours of electric energy. During these days, the fuel consumption for the production of one kilowatt-hour of electric energy has been reduced almost by 40 grams. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 25 Dec 79 p 1] The fifth power unit of 210,000 kilowatts started operating at the Maryyskaya GRES imeni 50th Anniversary of the USSR, the leader in the power industry of Turkmenistan. Now the capacity of this electric power station has exceeded one million kilowatts. It will be yielding 70% of the electric power produced in the republic. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 22 Dec 79 p 4] 10,233

ECOLOGICAL MAP -- Leningrad -- Scientists of the Forestry Engineering Academy imeni S. M. Kirov have compiled an ecological map of the Bratsk timber industry complex. Having studied the effects of gases ejected onto the trees of this region, they recommended measures for maintaining purity of the air. The Leningrad scientists are developing such "cleanliness maps" for industrial centers of Siberia and the Far East. [Text] [Moscow SEL'SKAYA GAZETA in Russian 5 Jan 80 p 1] 10,233

SAYANO-SHUSHENSKAYA GES -- Sayanogorsk, Krasnoyarskiy Kray (TASS) -- The rotor of the third hydraulic unit of the Sayano-Shushenskaya GES has made its first turn. True, it was not under the powerful head of the Yenisey water, but with the aid of a crane which put in motion its 1500-ton body with a cable through a system of pulleys. During this prestartup operation, its turning parts were measured and the quality of the assembly of the electric machine was checked. Specialists agreed unanimously that the assembly of this unit of 640,000 kilowatts was done perfectly. This is a serious test of skill for the builders of the hydroelectric power station. Unlike the existing turbines, the turbine of the third unit was equipped with a so-called standard rotor intended for a water head of 100-120 meters. The turbines of the first two units are still operating at an 80-meter head. The reason is that they were put into operation for the first time in the hydroengineering practice at the suggestion of Leningrad designers when the dam reached only one-third of its height. This bold experiment made it possible to speed up the startup of the GES and to obtain additional millions of kilowatt-hours of electric energy. And now, when the dam rose to a 125-meter mark (its design height is 242 meters), the time has come to introduce a hydraulic unit with a standard rotor. Later, the equipment of the first two turbines will be replaced. The Sayano-Shushenskaya GES is referred to as the energy nucleus of the Sayanskiy Territorial Production Complex. Electric power transmission lines stretch from the Karlovyy site of the Yenisey to the enterprises and construction sites of Sayanogorsk, Abakan, and Minusinsk. With the startup of the third hydraulic unit, the electric power output of the GES will double. [Text] [Moscow IZVESTIYA in Russian 20 Dec 79 p 3] 10,233

THIRD GES ON THE VILYUY RIVER -- Yakutsk, V. Komarov -- Initial construction jobs have been started at the site of the future third hydroelectric power station on the Vilyuy River. A 59-meter tall dam will be built across the river 150 kilometers downstream from the two operating electric power stations. Its four units will be a part of the Vilyuyskaya GES cascade and will produce more than one billion kilowatt-hours of electric energy a year. It is planned to start the operation of the first unit in 1985. Preparatory jobs on the banks of the river are being conducted under the direction of O. I. Kharev, a veteran hydraulic engineer, by an integrated brigade of experienced builders who had built the first two stations. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 9 Jan 80 p 1] 10,233

NIZHNEKAMSKAYA GES -- Naberezhnyye Chelny, Ye. Ukhov, "Trud" correspondent -- A second unit of 78,000 kilowatts has been put under industrial load and produced electric current at the Nizhnekamskaya GES. The heavy gates in front of the second "window" of the dam were raised and streams of the Kama water rushed to the steel blades of the turbine. The installation teams of the Chegninskiy section of the Trust "Spetsgidroenergomontazh" [Specialized Installation of Hydraulic Power Equipment] and the teams of "Gidrostroy" [Trust for the Construction of Hydraulic Engineering Structures] shortened the standard assembly time of the machine to the minimum and completed the entire complex of jobs, from the lowering of the rotor into the crater to the idling of the unit, ahead of schedule. The large-unit assembly method was very effective. Apart from saving the time, this made it possible to achieve a truly high precision in assembling the huge components and assemblies of the unit. It took the installers just a few days to carry out the last prestartup operations and to synchronize both units. I. Artyushkin, an experienced turbine specialist, said that the next machines will be assembled still faster. This is his one hundred and first unit. The start button was pressed on the control board of the new unit, and a new stream of energy started flowing to the Unified Power System of the country. [Text] [Moscow TRUD in Russian 3 Jan 80 p 1] 10,233

BUREYSKAYA GES -- The dam of the Bureyskaya GES will rise 142 meters high at the Talakanskiy site. It will be higher than the dams of the Bratskaya, Zeyskaya, and Krasnoyarskaya hydroelectric power stations. Six units of this station of total capacity of two million kilowatts will produce more than seven billion kilowatt-hours of electric energy a year. The builders are now working on the taiga-covered banks of the Bureya River. They are building residential houses, warehouses, and moorings. [Text] [Moscow STROITEL'NAYA GAZETA in Russian 4 Jan 80 p 3] 10,233

NABEREZHNYYE CHELNY TETs -- The tenth boiler started operating at the heat and electric power station of the Kama Association for the Production of High-Capacity Trucks. This concluded the construction of the first section of the TETs. It provides a reliable supply of heat and power for the operating shops of the KamAZ [Kama Automobile Plant]. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 5 Jan 80 p 1] 10,233

KHUDONI GES -- Tbilisi -- Construction of the Khudoni GES has been started at the upper reaches of the Inguri River. This station with a capacity of 740,000 kilowatts is the sixth station in the Inguri cascade. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 14 Dec 79 p 1] 10,233

EKIBASTUZ GRES -- Ekibastuz, Pavlodarskaya Oblast, V. Stupak, staff correspondent of "Kazakhstanskaya pravda" -- The construction of a conversion complex for long-range electric power transmission has been started near Ekibastuz. The electric "river" which will start here will stretch from Ekibastuz to Tambov. The alternating current produced at the four Ekibastuz GRES will be converted at the complex to direct current. For this, a fundamentally new equipment was developed by the All-Union Electrotechnical Institute imeni V. I. Lenin. For example, high-voltage thyristor valves were created instead of awkward unreliable mercury rectifiers. They passed the tests successfully. Many things will be used for the first time for this superlong-distance power bridge. Therefore, it has been decided to build an experimental 10-kilometer section of the line in 1980. It will make it possible to develop simultaneously the technology of the installation of supports 42.5 meters high, the suspension of unusually thick wires, and to reveal the special characteristics of the operation of the line under complex climatic conditions of Northern Kazakhstan. Hundreds of highly skilled specialists will be working at the conversion complex. It has been planned to build a microrayon for them in the center of Ekibastuz. [Text] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 29 Nov 79 p 1] 10,233

ELECTRIC POWER TRANSMISSION LINE -- The personnel of the All-Union Electrotechnical Institute imeni V. I. Lenin are preparing to mark the 110th Anniversary of V. I. Lenin's birthday with their new creative successes. They have developed complexes of equipment for superhigh-voltage electric power transmission lines which will ensure the transmission of power from Ekibastuz GRES to the central regions of the European part of the USSR and to the Urals. A direct-current line will be created which is unique with respect to its length. This will make it possible to save great amount of materials, will ensure reliable power connection with the largest coal regions, and, in the final analysis, will become a new step in the creation of a unified power system of the country. [Text] [Moscow TRUD in Russian 10 Jan 80 p 2] 10,233

CSO: 1822

ENERGY CONSERVATION

ENERGY CONSERVATION PROGRAMS

Moscow KRASNAYA ZVEZDA in Russian 4 Jan 80 p 2

[Article by Doctor of Technical Sciences Professor S. Yatrov, Director, All-Union Scientific Research Institute for Comprehensive Fuel and Energy Problems, USSR Gosplan: "Base, Key Branch"]

[Text] Today's discussion deals with this country's fuel-energy complex, a complex which is one of industry's base branches and which now, as was noted at the November (1979) CPSU Central Committee Plenum, has become a key area of development of our nation's economy.

For a beginning let us ask the following question: what oil, coal, and gas resources does the earth contain? According to calculations by Soviet scientist N. B. Vassoyevich, the sedimentary rocks of our planet contain 77 trillion tons of hydrocarbons. These are immense but not limitless riches. In addition, the bulk of these resources are highly scattered and for this reason are not of commercial value. Oil, for example, is bedded in rock strata in such a manner that it cannot be fully extracted, and oil reserves are also nonuniformly distributed among the continents. It is for this reason that voices of alarm are being raised in many countries, such as the United States, about the approach of an "oil famine."

Our country is the only one of the world's developed countries which bases its economy on its own fuel-energy resources. Just in the last 15 years production of electric power and petroleum (including gas condensate) in the USSR has almost tripled, gas production has increased more than fourfold, while coal production has increased by 40%. Operating in our country is the world's largest unified power system, containing more than 700 electric power stations.

The socialist plan system makes it possible closely to coordinate the branch and territorial principles of development of the nation's economy. In conformity with the resolutions of the 25th CPSU Congress, the fuel-energy potential in the eastern regions of our country is growing particularly rapidly, regions which, as we know, are rich in mineral raw materials and hydropower resources. The oil and gas fields of Western Siberia and the coal fields of the Ekibastuz, Kansk-Achinsk, and Neryungrinskiy basins are being developed at a rapid pace. All this is a reliable foundation for increasing production of electric power. Construction of the Nurek GES is fully completed, and power generating units have gone into operation at a number of thermal electric power stations. Modern power engineering is relying more and more on the achievements of science and on high-productivity equipment.

Much has been accomplished during the years of the 10th Five-Year Plan toward the development of nuclear power engineering, especially in the European part of this country, where the major cities and industrial enterprises are concentrated but where energy resources are insufficient. The Leningrad, Kursk, Armenian, Kola and other nuclear power stations are now in operation.

It might seem to the uninitiated that we could not have any special concern on the score of fuel and energy, but they are being consumed in ever increasing volumes. Consumption of these resources in our country has almost doubled in the last three five-year plans. Calculations for the immediate and more distant future indicate that increasing quantities of fuel and energy will be required in all principal areas of development of the nation's economy. We must also bear in mind the fact that it is costing society more and more to produce and transport oil and gas, for newly-discovered oil and gas resources are located further and further from the points of consumption.

Many of these factors are already today making their presence known. Comrade L. I. Brezhnev stated in his address at the November (1979) CPSU Central Committee Plenum: "...Since the growing requirements of the nation's economy are being met with effort, we must give more and more thought to the entire aggregate of energy problems."

It was emphasized at the Plenum that, as applied to the 1980's, the task consists in substantially improving this country's fuel-energy balance, and particularly in reducing oil's share as a fuel for electric power stations.

What must be done to achieve this? First of all, it is necessary to boost gas production at an ever increasing rate, especially in Western Siberia, and on a large scale to replace with natural gas the presently-consumed residual fuel oil. Second, nuclear power must grow more rapidly. Thirdly, it is necessary to speed up the development of fuel-energy complexes, and of course construction of needed power transmission lines.

Conducted economic studies and technical-economic calculations in this country's draft fuel-energy balance for the 11th and 12th Five-Year Plans convincingly demonstrate the economic advisability of reorganizing the structure of the fuel-energy balance in the direction of a substantial increase in the rate of natural gas production. This approach is the most economical. It will make it possible to resolve with the best results the problem of a stable energy supply for our country.

It is an entirely realistic plan to convert large thermal electric power stations in the next five-year plan over from residual fuel oil to natural gas in the Ural and Volga economic regions. This will make it possible to release 13 million tons of fuel oil, which in turn will make it possible to increase the volume of light refined products produced from residual oil with secondary refining processes.

At what stage do we presently find solution of this problem? As early as 1978 USSR Gosplan, at the request of ministries and agencies, made the decision to convert 267 fuel-consuming installations from residual fuel oil to natural gas. Unfortunately this decision is being implemented slowly at the present time. For example, such big fuel consumers as the USSR Ministry of Power and Electrification, the USSR Ministry of Ferrous Metallurgy and certain other branches had not yet even submitted their proposals on converting thermal electric power stations and plants over to natural gas.

Of course replacement of fuel oil by natural gas is not the only way to solve the problem. The party is strongly and emphatically addressing the question of boosting reserves of the principal types of fuel resources. Measures include construction of new mines, oil and gas fields, and development of large new fuel-energy complexes. The most important of these today are the Western Siberian oil and gas complex and the Kansk-Achinsk coal complex.

In recent years the Western Siberian region has been producing almost half of this nation's oil and one third of its natural gas. There is also a rich future in store for the Kansk-Achinsk complex -- a unique coal region situated along the Trans-Siberian Railroad. Coal reserves in this complex total 140 billion tons, and the coal can be extracted by the most advanced strip-mining techniques. The coal mined in this complex is the country's cheapest.

In short, further development of these complexes, as well as accelerated development of the Ekibastuz and Kuznetsk complexes,is the right way to go in order to ensure our country a stable fuel and energy supply.

But regardless of the success we have achieved in this area, the task of efficient utilization and conservation of fuel and energy remains a most important task for the nation as a whole. There is much untapped potential in this area. Some has already been put into action. I might mention that in the first three years of the present five-year plan this country has saved 39 billion kilowatt hours of electricity, 10 million tons of standard fuel, and 77 million gigacalories of thermal energy.

How were these economies achieved? Thanks to improvement in production technology, better organization of production control and management, and adoption of more economical equipment. Considerable benefit was also derived from adopted measures to achieve fuller utilization of secondary fuel and energy resources and reduction of fuel losses during extraction, transport, storage, and refining.

At first glance it would seem that the fuel and energy conservation situation is in good shape. But the results achieved up to the present time are below our capabilities. It is difficult even to enumerate all these possibilities.

Take, for example, such a problem as that of changing over to roller bearings all freight cars which are being manufactured and are presently in use. Resolution of this problem will make it possible to reduce diesel fuel consumption each year by 500,000 tons, electric power by almost 1.5 billion kilowatt hours, and short-supply lubricating oil by 300,000 tons. Or take the example of standardized heating and heat-treatment furnaces burning liquid and gaseous fuel. If we set up series production and operation of such furnaces, we shall eliminate annual losses of 15 billion cubic meters of natural gas. For comparison we shall note that approximately this quantity of natural gas is conveyed each year through the Bukhara-Ural natural gas pipeline, one of the nation's largest.

Impressive results can be achieved by meeting plan-specified targets pertaining to manufacture of waste-heat boilers, auxiliary equipment and replacement parts for boiler installations, particularly if industry manufactures the required quantity of devices for controlling and monitoring the operation of such installations, heat distribution networks, and consumption of various kinds of energy. Employment of automatic control of heat dispensing in housing and public buildings on the specified scale constitutes a certain reserve potential for achieving conservation. We can definitely reduce consumption of light refined products in agriculture, etc.

Of particular importance is the matter of prompt incorporation into production of the latest scientific and technological advances. Everything is important here: initiation of manufacture and operation of 500 and 800 megawatt generator units in power engineering, the most extensive employment of continuous steel casting and oxygen converters in the steel industry, and economical process equipment in the chemical industry.

One might ask: But is the game worth the candle? It most definitely is. Calculations indicate that measures aimed at achieving economies in fuel and energy resources in the immediate future will average twice to three times as cost effective as boosting production.

Of course production is growing and will continue to grow. We are advancing ever further northward and eastward in the quest for fuel, and we are drilling ever deeper into the earth. Drilling rigs bristle on land and offshore and are rising on the frigid tundra and in the burning desert....

The party is stating the task of giving some thought in advance to power engineering of the future as well. The November (1979) CPSU Central Committee Plenum stated that our long-range plans should specify extensive construction of nuclear power stations employing fast-breeder reactors, as well as projects covering controlled thermonuclear synthesis, production of synthetic liquid fuel, and utilization of solar and thermal energy.

There is a persistent search under way in this country to find efficient ways to solve the fuel and energy problem, for this is a key problem for our nation's economy. Further growth of the economy of our homeland depends in large measure on its successful solution.

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ENERGY CONSERVATION

CONSERVATION IN KUZBASS ENTERPRISES

Moscow STANDARTY I KACHESTVO in Russian No 11, Nov 79 pp 66-70

[Article by Yu. Kravchenko, STANDARTY I KACHESTVO special correspondent: "Saving Fuel and Energy Resources in Kuzbass Enterprises, A Topical Exhibition at the VDNKs SSSR"]

[Text] Economy in the utilization of raw materials and resources, fuel and energy is one of the conditions of the successful development of our national economy. The plants, mines, electric power plants and construction projects of Kemerovskaya Oblast have accumulated a rich fund of practical experience in the efficient use of their coal, oil, heat and electric power. Telling the story of this experience was a topical exhibition which ran for approximately 6 months in the Machine Building pavilion at the VDNKh SSSR [Exhibition of Economic Achievements of the USSR].

The first part of the exhibition was devoted to a general characterization of the oblast and its industry. An individual stand displayed the text of the decree of the CPSU Central Committee on "The Kemerovskiy CPSU Central Committee on "The Kemerovskiy CPSU Obkom's Organizational and Political Activities in Connection with the Effort to Conserve Fuel and Energy Resources in the Oblast's Enterprises and Construction Projects," which presented a favorable evaluation of the contribution the Kemerovo people have made to the nationwide conservation effort.

The oblast today has approximately 900 industrial enterprises and construction organizations, more than 50 scientific research institutes and 65 higher and secondary specialized educational institutions.

The products manufactured by the oblast's enterprises are exported to 78 countries of the world, and more than 570 of them have been awarded the government's Seal of Quality. Coal, metallurgy and chemicals, as well as machine building and metal working, are the oblast's leading industries, which together consume more than 70 million tons of standard fuel annually. It is they which are the most energy-intensive: more than 30 billion kilowatt-hours of electric power are consumed in the oblast each year. We can therefore understand the exceptional attention the party obkom is devoting to searching for and exploiting hitherto untapped potential for reducing specific consumption of petroleum, oils, gasoline and steam in the course of the production process and cutting losses occurring during the transportation, storage and processing of manufactured products.

In 3 years of the Tenth Five-Year Plan the oblast as a whole saved 871 million kilowatt-hours of electric power and 718,000 tons of standard fuel. Contributing to a substantial degree to this accomplishment were the comprehensive, long-term conservation plans developed in all oblast cities and in most of the oblast's enterprises, on the majority of its construction projects and on its kolkhozes and sovkhozes. The people in Kemerovo have taken on the obligation by the end of the current five-year plan to have saved no fewer than 1,632 million kilowatt-hours of electric power and 848,000 tons of standard fuel and reduce losses of coal underground by 6.9 million tons.

The section designated "conserving fuel and energy resources is a party concern" shed light on the primary methods and modes employed and directions taken in the course of accomplishing these ends.

Oblast, city and rayon party committee plena and bureau meetings; party, Komsomol and workers' gatherings and conferences on science and its practical application to production reguarly discuss matters connected with the economical consumption of fuel, electric power and lubricants.

Special commissions charged with supervising and monitoring the implementation of the decisions which have been made have been set up under the party obkom, the gorkoms and many party organizations.

Party bodies, people's control groups and points and Komsomol'skiy Prozhektor conduct surprise inspection campaigns and public audits looking into the utilization of fuel and energy resources.

Oblast party organizations attach great importance to the economic education of the working people. A system of communist labor schools has been established, while people's universities direct their audiences' creative thinking toward a search for new means of achieving economies.

To the obkom's great credit is the fact that virtually all labor kollektivs have specific obligations to reduce consumption of fuel and electric and thermal power. The efforts of workers and technical engineering personnel in the mines, pits and treatment plants have been focused on achieving a more thorough extraction of coal from underground and on increasing volumes and improving the technology involved in processing it. The rayon's electric power plants and boiler facilities are improving their electric and thermal power transmission system and expanding their use of coals which are in abundant supply.

This section of the exhibition devoted special attention to the widespread competition taking shape for the creation of a savings fund under the watchword "Every working person an economist at how own work place." Coming out as initiators of this movement, sanctioned by the bureau of the Kemerovskaya CPSU obkom, have been the miners in a number of the leading mines, Zapsib [West Siberian Metallurgical Plant imeni 50th Anniversary of October] metallurgists, Belovo and Tomusinsk power engineers and Azot and Karbolit association chemists. More than a half-million oblast working people responded to their call by opening up individual and collective team, shift and shop conservation savings accounts. Thanks to this developing competition, the oblast has chalked up savings of more than 1 million tons of standard fuel and 2 billion kilowatt-hours of electric power. Scientific research and planning and design institutes have put together combined teams completing (in accordance with special plans) each year approximately 40,000 specially researched and developed innovations, which yields savings of roughly 50 million rubles.

A conservation coordinating council has been set under the party obkom to unify and coordinate all these efforts. Similar councils have been created under party gorkoms and raykoms as well. These bodies comprise both party and soviet organization leaders and people's control and Komsomol'skiy Prozhektor representatives, leading scientists and enterprise specialists.

The coordinating councils monitor the accomplishment of planned organizational and technical steps and participate actively in the planning and conducting of conferences on science and practice and seminars and schools providing opportunities for the exchange of practical experience accumulated by persons having to their credit outstanding records in this effort.

In the course of one of its recent meetings, for example, the oblast council analyzed the Sibgipromez [Siberian State All-Union Institute for the Planning of Metallurgical Plants] institute's efforts in connection with the introduction of advanced technological solutions directed toward the conservation of metal and material resources. It also prepared recommendations for the Yuzhkuzbassugol' association concerning a reduction of coal losses during mining, processing, transportation and storage.

The oblast party committee continuously involves people from higher educational institutions and scientific research and planning and design institutes in the effort to solve conservation-related problems; the conclusion of long-term agreements between scientific institutions and industrial enterprises has become common practice in the Kuzbass. The joint efforts of scientists from the Institute of Mining of the SO AN SSSR [Siberian Division of the Academy of Sciences of the USSR] and the Kuzbass Polytechnical and Siberian Metallurgical Institutes and technical engineering personnel and workers from the Kuznetsk metallurgical combine, for example, culminated in the development of a new iron ore mining technology involving the use of the Sibiryachka VDPU-4TM vibrator: annual electric power consumption is being cut by 4 million kilowatt-hours. This innovation has been introduced at many iron ore mining facilities.

Utilization of more economical machines and equipment is one of the key aspects of conservation. Among these we could include the light drill developed by the Eastern Scientific Research Instiute of Ore Mining (VostNIGRI), which makes possible a saving of almost 1.5 million kilowatt-hours of electric power annually and a unit for localizing and automatically preventing nonstable rolling introduced into Zapsib operations, which saves up to 2 million kilowatt-hours of electric power each year.

Methods of disseminating information on a mass scale are also contributing to operational efficiency. Oblast, city, rayon and the large-edition newspapers have introduced special new columns; newspapers have introduced special new columns; newspapers have published 120 pages dealing with conservation-related subjects and conducted 29 wall press reviews, in which more than 5,000 newspapers participated, while radio and television channels have carried 350 broadcasts devoted to the conservation effort.

The Kemerovo TsNTI [Center for Scientific and Technical Information and Publicity Campaign Material] is contributing to the effort to publicize scientific and technical advances. It has prepared 120 radio and television broadcasts, organized 3 technical conferences and 10 seminars and put out a large number of informational leaflets and topical collections.

Among this section's exhibitors was the Kemerovo CPSU gorkom, whose organizational and political activities exhibit visitors estimated at their true value. More than 890 primary party organizations are now functioning in Kemerovo under the watchword "A militant party group is a militant kollektiv." The efforts of 25,000 propagandists and political information specialists, 15,000 people's control representatives and 1,200 Komsomol'skiy Prozhektor headquarters and points are being directed toward maintaining the conservation effort in the localities.

Oblast rationalizers, whose activities are finding all possible support in enterprise party organizations, are making a substantial contribution to the coffers of cost consciousness. A saving of 148 million rubles has been achieved, for example, from the introduction over the 3 years of the five-year plan of 112,000 inventions and suggestions for improving efficiency, which esceeds the socialist obligations assumed by 8 million, rubles. In 1977, the oblast council of the VOIR [All-union Society of Inventors and Rationalizers] together with Kuzbassenergo toted up the results of the first round in the competition for fuel and energy conservation. Participating were innovators from 50 enterprises. The adoption of suggestions submitted in the competition helped the country 117 million kilowatt-hours in electric power and 97,000 tons of standard fuel.

The following section of the exhibition, which was based on full-scale exhibits, display boards, photograph albums and scale models of various pieces of equipment, apparatus and machinery provided graphic illumination of a variety of means of conserving fuel and energy resources and the scope of socialist competition in our national economy's industries in Kemerovskaya Oblast.

Among the exhibitors in this section were the Kuzbassugol', Kemerovougol', Yuzhkuzbassugol' and Gidrougol' production associations and others.

The field's coal industry has begun to make increasingly extensive use of advanced coal extraction methods, and mining operations are being concentrated to an ever greater degree. According to figures from the exhibition, output of coal to the surface has increased by 32 million tons in the course of the past 7 years despite a reduction in the number of cleaning sections (from 540 to 485). The volume of fuel extracted by mechanized facilities has increased by more than twice over the same period.

One of the miners' great achievements has been a changeover to pillarless seam working.*

The introduction of pillarless working is making it possible to extract many million more tons of coal (the reserve recovery coefficient at some mines is now reaching 0.97), improve overall technical-economic indicators and increase coal output without the need for additional capital investment.

The introduction of innovations, an improved method of working thick seams and the filling of mined out areas have reduced fuel losses underground over the 3 years of the five-year plan for the oblast as a whole by 17 million tons.

The loss of coal during transport has until now had a highly adverse effect on the national economy. Rough calculations have indicated that more than 1.5 million tons are lost each year due to cars in disrepair, incomplete unloading of cars, coal being frozen to the sides of the cars, coal being blown out of cars, as well as to the unloading and storage of coal in open areas. The exhibition also featured demonstrations of scale models of a coal loading point with compacting equipment and units for applying a protective film over the surface of fine particles of coal, which eliminate losses during transport and storage.

Improving fuel quality is another source from which to obtain additional fuel. We know that each kilogram of rock that ends up accidentally in a furnace or burner requires up to 1.7 kg of coal to be heated. Cleaning works therefore rigidly maintain scientifically designed water sliming systems; they are enlarging their filtration sections and replacing outdated equipment.

Most mines and sections are now changing over to the use of higher voltage for the purpose of conserving electric power. The operation of water drainage systems and hoisting and compressor equipment is being regulated, and new methods extraction are being introduced. A new method introduced in the 50th Anniversary of October Pit, for example, preliminary loosening of the rock using explosives, is saving 1.2 million kilowatt-hours of electric power.

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*Pillars, column-shaped sections of a coal seam, were formerly left to provide support in worked-out mines.

Many Yuzhkuzbassugol' and Kuzbassugol' enterprises have eliminated inefficient electric power consumption by reducing the extent of their low-voltage distributing lines and by locating transformer substations as near as possible to the mine sections involved.

All this has made it possible within only 2 years of the current five-year plan to reduce the consumption of electric power required fro the extraction of 1 ton of coal from 24.4 to 19.8 kilowatt-hours and to achieve a saving of 266 million kilowatt-hours of electric power against the saving called for by the plan.

The "Greater loads from each face, complex, vehicle and machine" movement has found universal support within the oblast. Twenty-three crews are now mining 500,000 and more tons of coal each year, while 4 of them are responsible for over a million.

The Metallurgy subdivision provided information on the operations performed by various kollektivs within the Kuznetsk Metallurgical Combine imeni V.I. Lenin (KMK), the Western Siberian Metallurgical Plant and others.

The Kuznetsk combine is a modern close-cycle enterprise comprising the metallurgical plant and a mine management operation. The BAM [Baykal-Amur Main Line], KamAz [Kama Automobile Plant], Atommash [expansion unavailable], the Sayano-Shushenskaya GES...all these are far from comprising a complete list of the consumers to whom KMK consigns its production.

Over the 3 years of the Tenth Five-Year Plan, the combine kollektiv has saved more than 4,400 tons of standard fuel and 16,353,000 kilowatt-hours of electric power. Contributing to this achievement among other things has been the conversion of most units to a new operating technology. This technology is based on the production of metal with the use of natural gas, which is not only reducing annual consumption of coke by 860,000 and of mazut by 700,000 tons, but is also improving working conditions and reducing harmful emissions into the atmosphere.

The combine has developed and is successfully employing a method of rapid hot coke-oven reconditioning involving the complete replacement of worn furnace lining elements. This is making it possible to bring a furnace back into operation within 16-20 days, which is 2.5 faster than allowed by conventional reconditioning methods. Saving more than 106,000 rubles annually is an evaporation blast-furnace cooling system developed by VNII-chermetenergoochistka [expansion unavailable], which in comparison with the conventional continuous-flow cooling process substantially extends the service lifetime of coolers and valves and reduces water consumption 60-70 percent, while the steam is utilized in meeting the plant's power requirements. The introduction of a dispersion method of preparing the mazut-water emulsion for heating open-hearth furnaces is cutting annual mazut consumption as much as 600 tons. The annual economic gain has been 207,000 rubles.

The Western Siberian Metallurgical Plant is one of the oblast's leading enterprises in terms of fuel and electric power consumption. Special attention is therefore being devoted here to organizing and conducting socialist competition for economical fuel and electric power consumption per 1 ton of production.

In the course of the oblast's 1978 public review of the efficiency of the utilization of raw and other materials and resources, Zapsib personnel offered a large number of suggestions for improving efficiency, the implementation of which saved 28.6 million kilowatt-hours of electric power and 22,700 tons of standard fuel.

Zapsib people also proposed that an effort be made to introduce planned capacities and achieve technical-economic enterprise indicators ahead of schedule. Since the beginning of the five-year plan they have achieved 42 of 54 plan target figures, 18 of them having to do with specific fuel and electric power consumption. More than 40,000 tons of standard fueld have been saved as a result.

For the first time in our own country's experience, plant personnel have modernized a blast furnace by employing a thrust method to increase its working volume to 3000 m^3. Obtained as a result have been 314,000 additional tons of pig iron. Also for the first time in our country, the plant killektiv has begun to use 420-ton capacity mixer ladles, etc to move liquid pig iron to the converter shops.

The oblast's chemical industry was represented by two enterprises: the Kemerovo Azot Order of the October Revolution Production Association and the Karbolit Scientific Production Association.

The Azot association is rightly referred to as the flagship of the chemical industry. Of the 27 items it produces, it turns out 10 bearing the government's Seal of Quality.

Its annual consumption of electric power approaches 1.5 billion kilowatt-hours. These figures have been increased several fold with the introduction into operation of large-capacity units producing mineral fertilizers. Under these conditions, the economical consumption of resources acquires critical importance. The association has taken a number of steps in the direction of greater economy in the consumption of fuel and electric power resources, a fact for which the following figures are evidence: over the 3 years of the five-year plan, it has saved almost 14 million kilowatt-hours of electric power and 203 tons of mazut.

These economies have been achieved by improving production, modernizing equipment, automating processes and introducing units into operation which have large individual capacities.

A scale model coagulation water purification plant served as an example of the care the kollektiv shows for the environment. An improved method has reduced the content of substances suspended in the water from 100 to 20 mg/l, eliminated the need for additional pumps on the water return cycles and reduced equipment downtime for repairs. The economic gain has been 5 million kilowatt-hours of electric power.

The Karobolit association is a comparatively new enterprise. A Formalin production facility was brought into operation here a few years ago, and in 1974-1975 a continuous method of producing phenolic alcohol was developed and introduced into industrial-scale production. The kollektiv of this association has also come out for the conservation of fuel and electric power resources and raw and other materials. It has modified its cooling plant's water-supply system, for example. River water had previsouly gone immediately to the user after filtering. With the new technology, however, the river water goes first to cool the condenser units, then to the filtering plant and then to the user. Technological innovation has made it possible to reduce annual return water consumption by 2.5 million m^3, which has in turn saved 200,000 kilowatt hours of electric power.

The Power Engineering subdivision exhibited the achievements of leading kollektivs within the Kuzbass electric power system.

Sparking the greatest interest in exhibition visitors was the Kuzbassenergo ASU [automated control system], which is making possible an annual saving of 116,000 rubles. It comprises 9 subsystems. These include subsystems for traffic control operations, power production and distribution, technical-economic planning, material and equipment supply, bookkeeping and accounting among others.

Industry enterprises have within the recent past modernized 43 boiler facilities and 13 turbo-units and replaced equipment with low technical-economic indicators with units with better performance ratings. The Tomusinsk GRES has been converted to burn low-grade gas coals, while the Novokemerovo TETs and the Kemerovo GRES are burning Nizhnevartovskiy casing-head gas. A number of other major steps have been taken, in consequence of which it has been possible, calculating on the basis of the generation of 1 kilowatt-hour of electric power, to reduce specific fuel consumption by 14.4 g. The 200,000-kilowatt-capacity power units of the Belovo and Tomusinski GRES have for a number of years now been achieving the lowest fuel consumption levels in comparison with similar units in other electric power plants.

A whole set of steps has been taken in the oblast's transportation systems, construction organizations and municipal services administrations. The use of electric braking, recuperation, in the process of which electric locomotive traction motors work as generators returning electric power to the contact system, has made it possible for Kemerovo railwaymen to save more than 50 million kilowatt-hours of electric power over the past 3 years.

Schools were conducted in conjunction with the exhibition to study the advanced experience accumulated by oblast enterprises and meetings arranged on a topical basis with various specialists, party, trade union and Komsomol officials, scientists, production innovators, rationalizers and inventors.

PHOTO CAPTIONS

1. Scale m odel of equipment unit used to apply water-mazut emulsion on coal surface. Annual economic gain--186,200 rubles.

2. Mixer ladle for moving liquid pig iron from blast furnace to converter shop. Ecohomic gain--5,000 tons of standard fuel by maintaining physical heat of the pig iron.

4. Zemlya [ground] unit and schematic diagram. This is an effective means of protecting electrical equipment against shorting which also meets more stringent electrical safety requirements. It insures reliability and safety in electric power plant operations and dependability in supplying electricity to consumers.

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FUELS AND RELATED EQUIPMENT

BREZHNEV CONGRATULATIONS TO GAS WORKERS, GAS WORKERS REPLY

Moscow TRUD in Russian 28 Dec 79 p 1

[Congratulatory Message From L. Brezhnev, Status Report by TASS Correspondent: "At the 1979 Finish Line"]

[Text] To The Work Forces of Enterprises and Organizations of the Gas Industry, Construction and Installation Organizations Engaged in Construction of Facilities for the Production, Processing and Transport of Gas

Dear Comrades! Congratulations on achieving in a short period of time excellent performance in growth and development of the gas industry -- production this year of more than 400 billion cubic meters of gas and a substantial overfulfillment of plan-specified targets for 1979 and the first four years of the five-year plan.

The outstanding results of your work constitute a substantial contribution toward implementation of the party's program to achieve an all-out increase in this country's fuel-energy resources and a vivid example of implementation of the decisions of the November (1979) CPSU Central Committee Plenum on ensuring uninterrupted operation of the branches and sectors of the nation's economy and meeting the requirements of the population in fuel and energy.

We can note with satisfaction that a characteristic feature in the activities of ministries, business executives, party, trade union and Komsomol organizations of enterprises and construction jobs has been concentration of the attention of production work forces on a decisive area -- accelerated growth and development and further improvement of large gas complexes in Tyumenskaya and Orenburgskaya oblasts, the Turkmen SSR, the Komi ASSR, as well as other areas of the country, and fuller utilization of existing facilities. Your initiative-filled and productive efforts to implement this policy course have made it possible rapidly to increase the rate of gas production, processing and transport.

I am confident that gas industry workers, construction and installation people, extensively utilizing advanced know-how and further improving their work efficiency, will honor in a worthy manner the 110th anniversary of V. I. Lenin's birth and will do everything in their power to meet the plan targets for 1980 and the five-year plan as a whole ahead of schedule.

I should like to wish you, dear comrades, good health and continued success in your labor for the benefit of our great homeland.

L. Brezhnev

Labor Report From Gas Industry Workers

Compressor and pumping stations, enterprises, construction sites, and all gas industry facilities are ablaze with red calico banners. These banners proclaim: "Congratulations on Your Labor Victory!" and "We Shall Transform 1980 into a Shock-Work Year!"

Mass meetings were held today in the gas fields, along the gas pipelines and at enterprises, in connection with Comrade L. I. Brezhnev's message of greeting to gas industry workers. The work forces are planning excellent shock-work duty-shift performances in honor of the 110th anniversary of V. I. Lenin's birth.

This country's gas industry is developing at a priority pace. The foundation of industry growth is accelerated development of new gas fields in Western Siberia, Turkmenia, and Orenburgskaya Oblast. The Soyuz transcontinental gas transport system, built jointly by the CEMA member nations, has gone into operation. Major natural gas pipelines -- Central Asia-Center, Northern Rayons of Tyumenskaya Oblast-Center, Ukhta-Torzhok-Minsk-Ivatsevich, and others are successfully in operation. Gas is being conveyed through these pipelines to industrial enterprises, electric power stations, and to urban and rural homes. A unified gas supply system is in operation in this country. More than 180 million people in this country are presently using gas in their homes.

Gas is a valuable industrial raw material. The gas-chemical complex built in Orenburgskaya Oblast in the current five-year plan is producing and processing 45 billion cubic meters of gas per year. This enterprise is supplying high-quality raw material for the chemical and petrochemical industry and for the production of mineral fertilizers.

No other gas producing region of this country has experienced such rapid and large-scale growth as Western Siberia. Gas field workers and construction workers are laboring here under harsh conditions. This country's principal raw materials base has been established and is rapidly growing. Large automated enterprises are in operation.

An aggregate of fundamentally new scientific-technical problems connected with organizing production and transport of gas under conditions of permafrost has been resolved for the first time in the history of the world gas industry in the course of development of the Medvezh'ye and Urengoy fields.

By the end of the five-year plan gas production in Western Siberia will be boosted to 155 billion cubic meters. The Siberians are striding confidently forward to this outstanding production figure.

This country's gas industry workers are confidently completing the fourth year of the five-year plan. More than 400 billion cubic meters of natural gas has been produced. The work forces of gas industry enterprises and construction jobs are conducting a persistent search for and implementation of new reserve potential for improving work efficiency and quality.

3024
CSO: 1822

ALIYEV ADDRESSES PETROLEUM MACHINE BUILDERS

Baku BAKINSKIY RABOCHIY in Russian 23 Dec 79 p 1

[Speech by G. A. Aliyev, first secretary of the Central Committee of the Azerbaijan Communist Party and non-votimg member of the Politburo of the CPSU Central Committee, with following remarks by officials and workers: "This Lofty Award Calls Us Onward to New Triumphs"]

[Text] The petroleum machine builders of Azerbaijan reached their planned 10th Five-Year Plan goals for rate of growth of production and of labor productivity ahead of schedule and also performed the 1980 plan for volume of production of equipment for oil fields and exploratory drilling ahead of time. Comrade Leonid Il'ich Brezhnev, General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet, sincerely congratulated the machine builders for their glorious labor triumphs. For its great successes in performance of five-year plan assignments and socialist obligations the All-Union Industrial Association of Petroleum Machine Building was given the Order of Lenin. On 22 December a meeting of workers of the Azerbaijan petroleum machine building industry was held at the Palace of Culture of the Machine Building Plant imeni Lt. Shmidt to celebrate these portentous events.

The meeting was attended by G. A. Aliyev, first secretary of the Central Committee of the Azerbaijan Communist Party and non-voting member of the Politburo of the CPSU Central Committee, and four members of the Bureau of the Central Committee of the Azerbaijan Communist Party: A. G. Kerimov, Yu. N. Pugachev, G. N. Seidov, and S. B. Tatliyev.

A. G. Kerimov, first secretary of the Baku city committee of the party, opened the meeting.

He introduced G. A. Aliyev, first secretary of the Central Committee of the Azerbaijan Communist Party and non-voting member of the Politburo of the CPSU Central Committee, who was greeted warmly by the crowd.

The speech of G. A. Aliyev

Dear Comrades!

We have gathered here to mark a great and joyous event in the life of our republic. The petroleum machine building workers, a leading detachment of the working class of Azerbaijan, have won a remarkable victory. They performed their difficult socialist obligations and completed their assignment for the 10th Five-Year Plan ahead of schedule. They have earned our country's highest award, the Order of Lenin. (Prolonged, stormy applause.)

Comrade Leonid Il'ich Brezhnev, General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet, warmly and sincerely congratulated the workers, engineering-technical personnel, and employees of the enterprises and organizations of the Azerbaijan petroleum machine building industry for this outstanding success. (Prolonged, stormy applause.)

Allow me to read Comrade L. I. Brezhnev's message. (To stormy applause Comrade Aliyev read Comrade L. I. Brezhnev's message. The hall rang with shouts of, "Thanks to the CPSU!", "Hail to the Leninist Central Committee of the Party!", and "Thanks to our beloved Leonid Il'ich for this lofty award!").

Permit me, comrades, on behalf of the Central Committee of the Azerbaijan Communist Party and the Presidium of the Supreme Soviet and Council of Ministers of the Azerbaijan SSR, to warmly congratulate you, and through you the entire 20,000-strong collective of petroleum machine building workers in the republic, the workers, engineer, technicians, scientists, designers, and economic managers of the enterprises of the Soyuzneftemash [All-Union Industrial Association of Petroleum Machine Building] Association for this remarkable labor triumph, the high praise received from the CPSU Central Committee, and this lofty award from our Motherland, the Order of Lenin. (Prolonged, stormy applause.) We want to tell you that we are enormously grateful for your inspired, heroic labor and we wish you new advances for the good of our great socialist Motherland. (Stormy applause.)

The message from Leonid Il'ich Brezhnev and the presentation of the Order of Lenin to the association are high praise for the valiant labor of republic machine builders. At the same time they are high praise for the contribution of the entire Azerbaijan working class to carrying out party designs, praise for the achievements of all the republic's industry to fulfill the plans of the 10th Five-Year Plan. (Stormy applause.) This is one more striking demonstration of the paternal concern of the party and government for our republic, for the continued development of its economy and the welfare and happiness of the people of Soviet Azerbaijan. (Prolonged, stormy applause.) This is an inspiring new stimulus for all the working people of our republic, who are struggling heroically to fulfill the plans of the 10th Five-Year Plan ahead of schedule for all indexes. (Applause.)

Allow me, on your behalf, on behalf of the working class and all the working people of the republic, to express boundless gratitude and sincere thanks to the CPSU Central Committee, the Soviet Government, and Leonid Il'ich Brezhnev personally for the warm, inspiring words of the message, this lofty award, and their constant concern for the flourishing of Soviet Azerbaijan. (Prolonged, stormy applause.)

Our meeting is taking place in a portentous time when Soviet people throughout the country are enthusiastically carrying out the decisions of the November 1979 Plenum of the CPSU Central Committee, meeting the challenges set down by Comrade L. I. Brezhnev in his speech at the Plenum. A major sociopolitical campaign has begun: preparation for elections to the Supreme Soviets of the Union republics and the local Soviets of People's Deputies. In our republic, as everywhere else in the country, the first candidate for deputy to the Supreme Soviet named by the workers is the loyal follower in the great Lenin's work, the unwavering fighter for human peace and happiness, Comrade Leonid Il'ich Brezhnev, General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet. (Prolonged, stormy applause.) This demonstrates over and over the monolithic unity of the Soviet people, the close solidarity of all Soviet people around our native Leninist party. (Stormy applause.)

Comrades! Fulfillment of the assignments of the 10th Five-Year Plan ahead of schedule by petroleum machine builders is the result of practical implementation of the decisions of the 25th CPSU Congress and performing the jobs outlined for the working people of Azerbaijan by L. I. Brezhnev when he visited Baku in September 1978. We also find these successes particularly gratifying because they are an important component of the large-scale program for accelerated development of the industrial sectors of the republic that determine technical progress, as envisioned by the July 1976 CPSU Central Committee decree adopted at the initiative of Comrade L. I. Brezhnev. And today we note with gratitude the great contribution made by the collective of the Soyuzneftemash Association to intensive industrial development in Azerbaijan. (Stormy applause.)

Petroleum machine building is one of the oldest industrial sectors in the republic. It had its beginnings in the last century. The industry has developed from small, primitively equipped workshops to a large science and production complex comprising 20 plants, three scientific research institutes, and a design-technology institute, and this has taken place in a historically short period of time. The enterprises of the Soyuzneftemash Association today are equipped with the latest and most advanced machinery and technology. They account for about 70 percent of all petroleum equipment produced in the USSR. Equipment developed by Azerbaijan machine builders has found recognition and earned a good reputation not only at petroleum deposits in our country, but also in far away lands. Products from the Soyuzneftemash Association are exported to 34 foreign countries.

The present successes of the association were made possible by the hard work, broad creative thinking, and radical changes that took place in the republic's petroleum machine building during the Ninth and 10th Five-Year plans. In this time the volume of production from petroleum machine building increased 1.7 times. The sector was developed by the most efficient method: expanding, redesigning, and technically re-equipping existing enterprises.

The scale of this transformation was such that today we really have new production facilities, meeting current demands with highly productive equipment and technology, where the old enterprises stood. In the last 10 years 110 million rubles of capital was invested for redesigning and modernizing the sector. Nine plants and 26 shops were completely re-equipped and 22 mechanized flow lines were introduced. Production sophistication rose and the working and living conditions of machine builders improved.

It is especially pleasant to remark that the Soyuzneftemash Association is a highly efficient operation today and the machine builders are steadily raising the quality indexes of sector work. In the last 10 years labor productivity at enterprises of the association has risen 2.3 times, the use of production capacities has improved, and the shift coefficient of equipment work has gone up.

During the 9th and 10th Five-Year plans more than 600 new types of modern petroleum field and geological exploration drilling equipment were put in production and 246 obsolete designs were withdrawn. Each year the quality and technical level of products being produced rises; many new articles meet the highest world standard for technical specifications. Forty-five percent of all petroleum field equipment has received the Mark of Quality. (Applause.)

The acceleration of scientific-technical progress in the sector and achievement of high efficiency and work quality were promoted by creative cooperation among scientists, engineers, technicians, and workers and the increased contribution of scientific research institutes and design organizations of the association to solutions to pressing production problems. During the 10th five-year plan alone 370 scientific and technical developments, more than 100 progressive technological processes, and dozens of inventions were introduced in production through the efforts of specialists. The economic impact of these measures exceeded 50 million rubles.

Completion of the five-year plan ahead of schedule by the collective of the association is a brilliant and graphic result of widespread socialist competition and the increased creative activism and initiative of the working people. The slogan advanced by the petroleum machine builders last year, "Do the five-year plan in four years!" became the battle standard of the campaign to continue raising production efficiency and work quality. It received wide dissemination and produced great practical benefit, not only in the sector but throughout the economy of our republic. (Stormy applause.)

The collectives of the enterprises of the republic petroleum machine building industry were among the first to answer Leonid Il'ich Brezhnev's appeal for assistance to the Tyumen' petroleum workers in development of their fuel-energy resources. A movement initiated by employees of the Bakinskiy Rabochiy Plant under the slogan "Fill orders for Tyumen' ahead of schedule, with high quality!" spread broadly in the republic. In support of this patriotic initiative, all the enterprises of the association are performing deliveries of output to West Siberian petroleum workers ahead of schedule. (Applause.)

Upon becoming engaged in socialist competition the workers of the association brought large reserves into action and are now working without any lagging behind. The collectives of 41 shops, 80 brigades, and 21 sections completed five-year plan assignments ahead of schedule. (Applause.)

Famous production leaders and innovators carry the banner of socialist competition high. More than 6,000 machine builders have already finished the five-year plan and their work now counts in the 11th five-year plan. (Stormy applause.) By their unselfish shock labor they are expanding the fame of the heroic working class of Azerbaijan, continuing and developing its remarkable traditions.

Honor and glory to the working class of Azerbaijan! Honor and glory to the petroleum machine builders of our republic! (Prolonged, stormy applause.)

And it is a pleasure for me, dear comrades, to announce today that a large group of the most outstanding employees of the association will be presented for the awarding of orders and medals of the USSR. (Stormy applause.)

A large contribution to the general labor triumph has been made by the collectives at the best enterprises of the association, and foremost among them the flagship of the republic petroleum machine building industry, the Plant imeni Lt Shmidt, already winner of two orders. (Prolonged, stormy applause.) Loyal to its glorious labor and revolutionary traditions, in the 10th Five-Year Plan, the workers of this plant were victorious in all-Union socialist competition three years in a row and were awarded the challenge Red Banner of the CPSU Central Committee, USSR Council of Ministers, AUCCTU, and Central Committee of the All-Union Leninist Komsomol. (Stormy applause.) The collectives of the machine building plants Bakinskiy Rabochiy, imeni P. Montin, imeni V. I. Lenin, imeni Yu. Kasimov, imeni S. M. Kirov, and others worked well and achieved excellent results. (Applause.) Energetic searching for and utilization of all production capacities, improvement of labor organization, strengthening of plan and industrial discipline, and raising the efficiency and quality of all work fostered the success of these collectives in socialist competiton and fulfillment of their lofty socialist obligations ahead of schedule. (Stormy applause.)

These successes of the collective of the association were made possible by the large amount of hard organizational and political work done by party, trade union, and Komsomol organizations of the enterprises of Soyuzneftemash to mobilize the workers to carry out party decisions, bolster the vanguard status of communists in production, and create a healthy moral atmosphere, an atmosphere of high principle and responsibility, in every collective. The rayon party committees of the city of Baku and the entire glorious Baku party organization have a large part in all of this. (Prolonged, stormy applause.)

Comrades! In his message Leonid Il'ich Brezhnev set forth great and important challenges for republic machine builders and expressed his confidence that the workers of the Azerbaijan petroleum machine building industry will make new advances in following the party line of raising production efficiency and work quality. To meet these challenges we must mobilize all communists and all working people at collectives of the association. We must steadily increase the pace of continuing redesign and technical re-equipping work at enterprises, steadily improve production management, and intensify work in each section. We have significant reserves: reducing labor-intensiveness and metal-intensiveness of the output produced and introducing scientific-technical advances and progressive production know-how. And there is no doubt that the collective of Soyuzneftemash will put these reserves into action and meet the challenges before it with honor. (Stormy applause.)

In short, comrades, there stands before you a great, important, and very hard job. Permit me to express my confidence that the workers of the Azerbaijan petroleum machine building industry, inspired by this award of the Motherland and the sincere message of Leonid Il'ich Brezhnev, will apply all their strength and energy to achieving great new goals and will mark the 110th anniversary of the birth of V. I. Lenin and the 60th anniversary of Soviet Azerbaijan with shock labor. (Prolonged, stormy applause.)

Dear comrades, please allow me to congratulate you once again for this great award and for the remarkable praise of your achievements, and allow me to wish you good health, progress, and new achievements in communist building for the benefit of our beloved Motherland. (Prolonged, stormy applause.)

Hail to the heroic working class! (Prolonged, stormy applause.)

Thanks to the Communist Party of the Soviet Union, the inspiration and organizer of all our triumphs! (Prolonged, stormy applause. All rise.)

[Remarks Following Speech by G. A. Aliyev]

R. A. Mamedov, head of the Soyuzneftemash Association, spoke: "The workers of the Azerbaijan petroleum machine building industry received the message of Comrade L. I. Brezhnev and the Ukase of the Presidium of the USSR Supreme Soviet awarding the association of the Order of Lenin with a feeling of unbounded joy and enormous enthusiasm.

"On this day of celebration the thousands of members of our collective express their sincere thanks and profound gratitude to our native Communist Party, the CPSU Central Committee, and our beloved Leonid Il'ich Brezhnev personally for the high praise of our labor. We understand very well that the greeting from Comrade L. I. Brezhnev and the awarding of the Order of Lenin by our country obligate us to work even better, even more productively, and the employees of the republic petroleum machine building industry give their assurance that they will justify the trust and concern of the party and make new advances in the struggle to raise production efficiency and work quality.

"The advances that have been made are the result of heroic labor by the workers, specialists, and all other employees of the enterprises, organizations, and scientific research institutes of the association. They were made possible thanks to the considerable organizational and political work of party, Soviet, and economic agencies of the republic and the enormous attention given by the Central Committee of the Azerbaijan Communist Party and the Bureau of the Central Committee to the development of petroleum machine building.

"In the last 10 years the association's volume of industrial production has increased 2.7 times and the average annual pulse rate has reached 11.6 percent. The collective of the Machine Building Plant imeni Lt. Shmidt, winner of two orders, has done particularly well in fulfilling the assignments of the 10th Five-Year Plan. They achieved their entire increase in production volume through raising labor productivity. The collectives of the machine building plants imeni Yu. Kasimov and imeni P. Montin reported fulfillment of five-year plan assignments for increase in production volume ahead of schedule. Leading workers of the association initiated a number of labor campaigns approved by the Central Committee of the Azerbaijan Communist Party which became widespread in the republic. More than 900 workers are laboring under the slogan 'Two five-year plans in five years,' and more than 6,000 production innovators have already fulfilled their personal five-year plans.

"Responding to the decisions of the November 1979 Plenum of the CPSU Central Committee and the inspiring speech of Comrade L. I. Brezhnev at the Plenum, the collectives of all the enterprises of the association have gone on Leninist labor watch and assumed stepped-up socialist obligations. Fulfillment of these obligations will provide an increase in volume of industrial production of 1.8 times during the five-year plan. More than 120 million rubles worth of high-quality petroleum field equipment will be produced beyond the five-year plan assignment."

In his statement A. M. Ragimov, leader of a brigade of heat treatment workers at the Machine Building Plant imeni Lt Shmidt, said, "The high praise of our work by Leonid Il'ich Brezhnev and the Order of Lenin awarded by our Soviet Motherland to the machine builders of Azerbaijan caused each of our hearts to overflow with happiness and pride.

"Workers at the plant imeni Lt Shmidt are pleased to recognize that we have a part in the common success. During the 10th five-year plan the plant developed at a high pace. In the first four years production volume rose by 60 percent; the collective of the enterprise fulfilled its five-year plan assignment in March 1979. And the brigade which I head is already working against the account for April 1981.

"The visit of Comrade L. I. Brezhnev to Baku in September of last year, his friendly meetings with working people, and the awarding of the Order of Lenin to the capital of our republic inspired us to new achievements. Leonid Il'ich's advice and suggestions became a militant program of action for us and helped us achieve this great labor triumph.

"Today we promise that we will work even harder to celebrate the 110th anniversary of the birth of V. I. Lenin and the 60th anniversary of Soviet Azerbaijan and the republic Communist Party in a worthy manner."

The next speaker was M. R. Mirzoyev, lathe operator at the Machine Building Plant imeni F. Dzerzhinskiy and delegate to the 25th CPSU Congress. On behalf of his comrades on the job, he expressed sincere gratitude to Leonid Il'ich Brezhnev, our native party, and the government for their constant attention and paternal concern for working people. The speaker said that the collective of his enterprise is constantly aware of this concern. In recent years the plant has been entirely rebuilt and supplied with new equipment. It has become one of the most up-to-date enterprises.

Plant workers are extensively involved in socialist competition to fulfill the assignments of the five-year plan ahead of schedule. The plan for 1979 and the socialist obligations were accomplished ahead of time. Many production leaders have already fulfilled their personal five-year plan, and Mirzoyev himself is already in the fourth quarter of 1982 in his work calendar.

Speaking on behalf of all workers at the plant, he said that, inspired by the decisions of the November Plenum of the CPSU Central Committee and the high praise of their labor, they would make every effort to increase their contribution to implementing the historic decisions of the 25th CPSU Congress.

R. V. Koroleva, coremaker at the Petroleum Field Machine Building Plant imeni P. Montin, said: "It is difficult to put in words the moving feeling of profound joy and extraordinary pride each of us feels today. We sincerely think our beloved Leonid Il'ich for his warm fatherly words and high praise of our work. We are happy that the collective of the Plant imeni P. Montin made a contribution to the general triumph of Soyuzneftemash. In September 1979 the plant reached its labor productivity level for 1980. More than 50 percent of our output has the state Mark of Quality. Fifteen of my comrades in labor fulfilled their personal five-year plans in two years and six months and resolved to complete another five-year plan before the end of 1980."

On behalf of the collective of the plant, Comrade Koroleva assured those present that workers of the enterprise would apply all their effort and energy to fulfill the tasks laid out by the historic 25th congress of our native Leninist party.

To the accompaniment of stormy, prolonged and lasting applause a message of greeting addressed to the party Central Committee and Comrade L. I. Brezhnev, General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet, was adopted.

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POPOV ON KATEK, TODAY AND TOMORROW

Moscow NOVOSTI DAILY REVIEW in English 11 Jan 80 pp 1-2

[Article by V. Popov, D.Sc. (Economics), Head, Laboratory of Economic Forecasting, the Institute of Economics of the Siberian Branch of the USSR Academy of Sciences]

[Text] In 1979, the CPSU Central Committee and the Council of Ministers of the USSR passed a decision on the development of the Kansk-Achinsk Fuel and Energy Complex [KATEK]. This complex will lay a solid foundation for the further development of the productive forces in Siberia on the basis of the country's cheapest fuel and electric power.

The first information on the Kansk-Achinsk deposits dates back to the 18th century. Broad-scale explorations in the region began only after the October revolution. At first, geologists discovered two separate deposits, the Kansk deposit and the Chulymo-Eniseisky deposit, which later proved to be parts of a single deposit. V. Yavorsky, the well-known Soviet geologist, called this deposit the Kansk-Achinsk coal fields.

The deposit stretches for more than 600 kilometers along the principal Siberian mainline. In some places its width reaches 250 to 300 kilometers. The deposit is divided into 24 fields which form 7 coal regions.

Favourable geological conditions make it possible to build here efficient open-cast mines with an average capacity of 40,000,000-60,000,000 tons of coal a year.

The richness of the deposit is explained by the small amount of rock per ton of coal. If we take the prime cost of coal in the Donets coal fields as 100 percent, the prime cost of coal in the Kuznetsky fields will be 60 percent, and in the Kansk-Achinsk basin--less than 10 percent.

Another important advantage of the Kansk-Achinsk deposit is its high labour productivity, hence fewer workers are needed for its development. Labour productivity (monthly output of coal in tons per worker) is 30 tons in Donbass, close to 85 tons in Kuzbass and more than 1,000 tons at the Kansk-Achinsk deposit. In the future this figure will grow to 2,000 tons according to estimates. To produce 100,000,000 tons of natural fuel in terms of coal equivalent by the end of the century in Donbass will require 150,000-160,000 workers, in Kuzbass, 50,000-60,000 workers and only 4,000-5,000 workers at the Kansk-Achinsk deposit. It is obvious that all this will make the solution of housing, social, cultural and personnel problems much easier.

The development of coal mining in the Kansk-Achinsk region will make possible the construction of several major thermal power stations badly needed by Siberia's economy.

The first thermal power station must be built at the Beryozovskoye deposit before 1990. This station will use eight turbines with an aggregate capacity of 6,400,000 kw. Later several more thermal power stations of the same size or even larger will be built within the complex.

Today the bulk of natural fuel in the USSR is consumed by the developed European USSR and the Ural region. However, the main reserves of fuel are to be found in Siberia. The Party believes, therefore, that the country should develop energy-intensive production in Siberia first of all. The KATEK complex is designed to lay the basis for the solution of this problem. It is expected that along with coal pits and power stations Siberia will develop (primarily in the KATEK zone) such power-intensive types of production as non-ferrous metallurgy (aluminium production first and foremost), ferrous electrical metallurgy, chemical and petrochemical industries (particularly the production of polymer materials), and the timber processing industry.

The setting up of the KATEK complex and the development of energy-intensive production in Central Siberia make it essential to further improve the production and social infrastructure. The resolution of the CPSU Central Committee and the USSR Council of Ministers provides among other things for the building of the new towns of Sharypovo in the Krasnoyarsk Territory, Nazarovo, Uzhur and Novy Itat.

The construction of housing facilities, schools, hospitals, clubs and educational establishments and the development of municipal services are as indispensable pre-requisites of the development of the KATEK Complex as the construction of coal pits and power stations.

Great importance is attached to environmental protection. This region will be stuffed with facilities complicating the ecological situation. It is vital that the land to be consumed by industrial enterprises, mining wastes and power stations should be used economically. It will be of no smaller importance to minimise industrial discharges into the atmosphere and public water reservoirs. Water resources must be also thriftily disposed of. In May 1979, the Siberian division of the USSR Academy of Sciences and other organizations concerned organized a wideranging discussion on the system of measures to be employed to prevent soil, air and water pollution in the region of the KATEK complex.

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FUELS AND RELATED EQUIPMENT

EQUIPMENT FOR UKRAINIAN COAL MINES

Kiev RABOCHAYA GAZETA in Russian 14 Dec 79 p 1

[Article by V. Deshko, RABOCHAYA GAZETA correspondent, Donetsk: "Equipment for Thin Seams"]

> [Text] Thin seams. As of 1 January 1978 thin seams in this republic's coal mines contained approximately 83% of commercially-recoverable coal reserves. And yet the old wide-cut equipment -- Donbass, Kirovets, and KTsTG continuous miners -- remains the principal means of mechanizing the working of thin seams. Only one third of these longwalls are equipped with mechanized setups.
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> This situation is due to a delay in development of efficient means of mechanizing coal face working (type BKT, KA-72 and K-103 narrow-cut continuous miners, type SO-75 and SN-75 scraper-loaders), mechanized equipment for sloping seams and seams with unstable wall rock (KMK-98, KM-103, KD-80, and KSTCh equipment), and coal face conveyers (SP-64-P2, and SP-202). And also because of termination of series production of Donbass mechanized supports and MK-67 narrow-cut continuous miners, type-size 1.

This is the general situation. And here is how matters stand with the working of extremely thin seams, in Donetskugol', for example. Association technical director A. M. Rud' tells the story: "Geologic conditions for working these seams are complex, and highly complex in some mines. Nevertheless the level of mechanization of working seams to 0.7 meter is the same as it was in 1960."

A total of 50 working faces are operating on all thin and very thin seams in Donetskugol'. Only 12 of these faces are being worked with narrow-cut equipment. The rest are being worked with the old wide-cut equipment. With identical conditions, work loading on this equipment is one third less than on the new equipment.

The lack of narrow-cut equipment for working thin seams is causing serious problems. The miners of the new Yuzhno-Donbasskaya Mine have encountered one such problem. According to the practice followed, in order to take coal from the most productive seam it is necessary first to take coal from another, thin seam. Working face advance should run 80-100 meters per month. This rate can be achieved only with employment of equipment with narrow-cut continuous miners. But this equipment is not available. MK-67 continuous miners, type-size 1, are being used for thin-seam working in the mine. But there are problems with these as well.

The result is that one seam holds back the working of another, and as a result the mine fails to produce the quantity of coal it could produce.

In this connection we should mention shielding strata and associated seams. They are also thin. Miners remove shielding strata in order to relieve rock pressure and to prevent breaks on more productive seams. But once again there is no equipment for removing them. Thus we come full circle.

S. V. Yanko, director of the Dobropol'yeugol' Association, says the following about the associated or complementary seams: "Due to a lack of proper equipment many mines must leave them untouched. This means that we are leaving thousands and thousands of tons of coal in the ground. Later you can't get it even if good equipment for thin seams is produced, for such changes will take place in the rock mass that it will be simply impossible to control the wall rock."

As it turns out, the designers and builders of new equipment have mothballed indefinitely, for reasons which are far from objective, equipment development projects with enormous potential for boosting coal production from thin and extremely thin-seam longwalls.

What are the prospects for the future?

In the next year or two mines working thin and extremely thin seams, according to A. A. Chichkan, chief engineer at the Gorlovka Machine Building Plant imeni Kirov, a principal supplier of coal-mining equipment, cannot count on taking delivery on new, high-productivity equipment. Not before the latter half of next year is the plant planning on turning out a small batch of upgraded Kirovets wide-cut continuous miners. Plans also call for upgrading the KTsTG continuous miner, but at a later date. According to the plant's chief engineer, this unit will feature a higher-horsepower motor and a beefed-up feed and cutter unit. In short the plant is about to do what the miners have been doing in their workshops for the last 10 years. Enough said.

The plant also intends to recommence building MK-67 continuous miners, type-size 1. But when? A. A. Chichkan did not give a precise answer to this question.

And how do matters stand as regards totally new equipment for thin seams?

At the Plant imeni Kirov a design team is working on a standardized continuous miner for seams ranging from 0.6 to 1 meter in thickness. The designers are seeking to standardize the feed, hydraulic insert, motor, and other assemblies. However... all this will not be earlier than 5 years hence. Not until 1985 do plans call for producing an experimental model of a continuous miner working at the upper limits of the above-stated range of seam thicknesses. It is hard to say when even a small series of standardized continuous miner assemblies for 0.6-0.75 meter seams will be produced.

But what is the reason for this? Why are conditions being dictated not by the miners but by the equipment builders?

As has been noted time and again, scraper-excavators are promising equipment for working thin seams. Of course on the condition that they are reliable in operation. At the Kurakhovskaya Mine of the Krasnoarmeyskugol' Association, for example, one such scraper-excavator with Sputnik supports has been working for three years now with a workloading of up to 800 tons of coal per day. Encouraging results have been obtained from testing of the new SN-75 scraper-excavator with Sputnik supports at the Trudovskaya Mine of the Donetskugol' Association.

ShakhtNIUI [Shakhty Coal Scientific Research, Planning and Design Institute] in Rostovskaya Oblast designs scraper-loaders. What are they developing at the present time? What can the designers suggest in the way of advanced face working equipment for thin and very thin seams in the Donbass for the future?

R. K. Nilov, ShakhtNIUI deputy director for science, reported at a meeting of the Scientific-Technical Council of the Ukrainian SSR Ministry of the Coal Industry that in August the institute completed operational testing of a new conveyer-type scraper-loader. But large-scale production should not be expected sooner than the end of the 11th Five-Year Plan. Production preparations are in the completion stage at the Shakhty Machine Building Plant on two basic models of the UST-2M, and the UST-2A, which operates in automatic mode, is being modernized and upgraded. These two scraper-loaders are designed for working coal seams 0.55 meter thick. Miners will take delivery on the first units next year. The institute has also been working on design of the KTSCh system.

What can we expect in the future?

"The plant's plan," replied Robert Konstantinovich, "for 1980 calls for building 20 SO-75 and 25 SN-75 machines. The first of these scraper-loaders works in a seam thickness range from 0.6 meter and larger, and the second -- from 0.65 meter and larger."

Setting for itself the task of perusing the future of total mechanization of working thin and extremely thin seams, the technical council also received reports from Dongiprouglemash and the Druzhkovka Machine Building Plant.

The KD-70 system, developed at Dongiprouglemash, was tested at the Yubileynaya Mine of the Pavlogradugol' Association and produced good test results. The miners brought the production load on this unit up to 832 tons per day on a seam 0.78-0.9 meter thick with unstable wall rock. This unit can work under conditions of seams dipping as much as 35° and with unstable wall rock.

For a number of reasons, however, which cannot be considered to be entirely objective (for example, final workup of the drawings dragged on unwarrantedly long), these units did not begin production in quantity in the 1970's. Now in place of the 70 affix, it bears the designation KD-80. The mines should not expect delivery sooner than two or three years hence, since many problems of series production have not yet been resolved, and yet this unit is specified in the CPSU Central Committee and USSR Council of Ministers decree entitled "On Measures to Achieve Further Development of the Coal Industry of the Donetsk Basin in 1976-1980," which was issued in February 1976.

What else do the people at the institute have to show the thin-seam coal miners? On the drawing boards we find upgraded Donbass supports, as well as the MK-67 continuous miner with addition of an M affix. Quite frankly, there is not much here.

Nor did B. P. Kelarev, representative of the Druzhkovka Plant, bring any clarity to the matter. He merely stated: "The plant is currently working on two longwall support system packages."

As regards manufacture of the modernized, upgraded Donbass-M supports, Boris Pavlovich commented: "We are prepared to begin producing these supports, type-size 1, but the question of packaging them with face working equipment has not yet been resolved."

By this he means MK-67 continuous miners, which are produced by the Gorlovka Plant imeni Kirov. Or, stated more accurately, production which this plant is preparing to resume.

In short, the picture is somewhat confusing as regards the development, production setup, series manufacture and in-mine incorporation of equipment for total mechanization of working thin seams.

V. A. Voronin, Deputy Minister of the Coal Industry Ukrainian SSR, stated the following on this score: "We have heard both sides -- from those who need equipment, and those who build it. As we can see, demand is running ahead of supply. We shall take the following practical steps, we shall determine where programs are having trouble, we shall adjust them within reasonable limits, and we shall submit proposals to the USSR Ministry of the Coal Industry and to Soyuzuglemash."

It is not difficult to catch the deputy minister's meaning. The Ukrainian SSR Ministry of the Coal Industry cannot by its own decision alter the production program of coal industry enterprises in order to satisfy demand for new equipment for working thin seams. These enterprises are subordinate to the union ministry. It is for this reason that the word "request" inalterably appears in a technical council decision wherever the question at hand is manufacture of new equipment.

It is not a matter of words alone, however. It is important that the USSR Ministry of the Coal Industry and Soyuzuglemash seriously address the problems of the Donbass and understand the acuteness of these problems. Working of thin seams is not promising without suitable equipment. And without working thin seams there are no prospects for boosting production of high-quality coal. It is precisely in this manner that we must today address the problem of thin and very thin seams. As we have seen, technical policy in this branch is currently far from what it should be. This policy must be revised.

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BRIEFS

NEW PETROLEUM TECHNOLOGY--A group of scientists from the All-Union Scientific Experimental Institute for the Gas Industry in Moscow recently developed a technology for obtaining gasoline and diesel oil for high-compression engines from gas condensate. A prototype of this unique system, which was installed in 1979 at the Urengoy Gas Condensate Combine, provided an output valued at approximately 1 million rubles. Designs of small, standard systems for converting gas condensate into motor fuels are currently being developed at this institute. They should soon be applied in the Soviet extraction industry. In the opinion of scientists and practitioners, the condensate conversion technology developed up to this time provides the capability of obtaining relatively cheap and, at the same time, high-quality gasoline and does not require excessively large investment outlays. [Excerpt] [Warsaw ZYCIE WARSZAWY in Polish 11 Jan 80 p 1]

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